

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
4 October 2001 (04.10.2001)

PCT

(10) International Publication Number  
**WO 01/73587 A2**

- (51) International Patent Classification<sup>7</sup>: G06F 17/00 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (21) International Application Number: PCT/US01/03038
- (22) International Filing Date: 30 January 2001 (30.01.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/193,065 29 March 2000 (29.03.2000) US  
09/635,833 9 August 2000 (09.08.2000) US
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- (71) Applicant (*for all designated States except US*): ARENA PHARMACEUTICALS, INC. [US/US]; 6166 Nancy Ridge Drive, San Diego, CA 92121 (US).
- Published:  
— *without international search report and to be republished upon receipt of that report*
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): JONES, Gareth [GB/US]; 210 South Helix Avenue, Apt. H, Solana Beach, CA 92075 (US).
- (74) Agents: SKALE, Andrew et al.; Brobeck, Phleger & Harrison, LLP, 12390 El Camino Real, San Diego, CA 92130 (US).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

WO 01/73587 A2

(54) Title: UNIVERSAL BIOMOLECULAR DATA SYSTEM

(57) Abstract: The present invention includes a database management system that interfaces with a plurality of databases storing biomolecular data. A request to access biomolecular data stored in at least one of a plurality of databases is received by the database management system from a user's computer. The database management system determines which of the plurality of databases store the biomolecular data. Instructions to access the biomolecular data in the at least one of the plurality of databases is generated and the information is accessed. The biomolecular data is received from the at least one of the plurality of databases. Then a web page display of the biomolecular data received from the at least one of the plurality of databases is generated and sent to the user's computer.

transmitting results of said program to said second processing unit responsive to said program being completed.

49) The method of claim 48 further comprising accessing said biomolecular data from a remote database maintained by a remote processing unit.

5 50) The method of claim 49 further comprising storing said biomolecular data received from said at least one of said plurality of databases.

51) The method of claim 48, wherein said step of generating said instructions comprises generating said instructions to edit biomolecular data stored in said at least one of said plurality of databases.

10 52) The method of claim 48, wherein said step of transmitting said instructions comprise periodically transmitting said instructions to perform iterative functions.

53) The method of claim 48, wherein said step of receiving said request to access biomolecular data stored in at least one of a plurality of databases comprises receiving a request, by said database management system, to access biomolecular data stored in at least  
15 one of a plurality of databases

54) The method of claim 48, wherein said step of determining which of said plurality of databases store said biomolecular data comprises determining, by said database management system, which of said plurality of databases store said biomolecular data.

55) The method of claim 54, wherein said step of generating instructions to access said  
20 biomolecular data in said at least one of said plurality of databases comprises generating instructions, by said database management system, to access said biomolecular data in said at least one of said plurality of databases.

56) The method of claim 55, wherein said step of receiving said biomolecular data from said at least one of said plurality of databases comprises receiving, by said database  
25 management system, said biomolecular data from said at least one of said plurality of databases.

57) The method of claim 31 further comprising:

reading a program to execute on said biomolecular data in said at least one of said plurality of databases;

generating said instructions for executing said programs for said at least one of said plurality of databases;

5 transmitting said instructions to said at least one of said plurality of databases;

receiving updates indications said at least one of said plurality of databases is executing said program;

indicating to said user that said at least one of said plurality of databases is executing said program; and

10 generating a web page display of results of said program responsive to said one of said plurality of databases completing execution.

58) A method for providing an interface to a plurality of databases storing biomolecular data over a system of networked computers, said method comprising:

15 processing computer instructions that direct a first computer to receive a request for access to biomolecular data stored in at least one of said plurality of databases, wherein said request was sent over a system of networked computers from a second computer;

automatically determining which of said plurality of databases store said biomolecular data;

20 automatically accessing said biomolecular data in said at least one of said plurality of databases;

automatically receiving said biomolecular data from said at least one of said plurality of databases;

25 automatically generating a web page file comprising said biomolecular data; and sending said web page file over said system of networked computers to said second computer.

59) The method of claim 58, wherein said system of networked computers is the Internet.

60) The method of claim 58, wherein said step of automatically determining searches a relational database, a chemical database, and a bioinformatics database.

- 61) The method of claim 58, wherein said web page comprising said biomolecular data comprises said biomolecular data in a convenient format.
- 62) The method of claim 58, further comprising:  
transmitting updates to said second computer indicating said method is being executed  
5 until said step of automatically generating a web page.
- 63) The method of claim 58, wherein said first computer is a server computer and said second computer is a client computer.
- 64) The method of claim 58, wherein said step of automatically determining which of said plurality of databases store said biomolecular data comprises automatically determining, by  
10 said first computer, which of said plurality of databases store said biomolecular data.
- 65) The method of claim 58, wherein said step of automatically accessing said biomolecular data in said at least one of said plurality of databases comprises automatically accessing, by said first computer, said biomolecular data in said at least one of said plurality of databases.
- 15 66) The method of claim 58, wherein said step of automatically generating a web page comprising said biomolecular data comprises automatically generating a web page, by said first computer, comprising said biomolecular data.
- 67) The method of claim 58, wherein said first computer is a database management system.
- 20 68) The method of claim 58, wherein said step of processing computer instructions requires a password.
- 69) A computer system for electronically retrieving biomolecular data from a plurality of databases over a system of networked computers, wherein said computer system comprises at least one central processing unit (CPU) and random access memory (RAM) coupled to said  
25 CPU, for use in compiling a target program to run on a target computer architecture, said computer system comprising:  
a client computer;  
a plurality of databases comprising biomolecular data;

a database management system;

a first electronic connection between said database management system and said client computer, wherein said first electronic connection is over a system of networked computers and said client computer requests biomolecular data from said database management system in a desired format and said database management system determines which of said plurality of databases stores said requested biomolecular data;

a second electronic connection between said database management system and said plurality of databases, wherein said database management system accesses said biomolecular data from said plurality of databases; and

a web page that is output from said database management system and sent to said client computer over said first electronic connection, wherein said web page comprises said biomolecular data in said desired format.

70) The system of claim 69, wherein said desired format comprises a histogram.

71) The system of claim 69, wherein said desired format comprises a table.

72) The system of claim 69, wherein said desired format comprises a chemical structure.

73) The system of claim 69, wherein said web page is in HTML format or XML format.

74) The system of claim 69, wherein said web page comprises an applet.

75) A method for providing an interface to a plurality of databases storing biomolecular data, said method comprising:

processing computer instructions that direct a computer to receive a request for access to data output from an instrument, wherein said instrument is connected to said computer and said computer is connected to a plurality of databases that store biomolecular data;

gathering said data from said instrument;

determining which of said plurality of databases is associated with said data output from said instrument;

accessing said at least one of said plurality of databases associated with said data output from said instrument; and

storing said data from said instrument in said at least one of said plurality of databases.

- 76) The method of claim 75, wherein said instrument is a laboratory instrument.
- 77) The method of claim 76, wherein said plurality of databases comprises databases that store chemical, screening, and genomic data.
- 78) The method of claim 77, further comprising generating a web page file comprising  
5 said data output from said instrument.
- 79) The method of claim 78, wherein said plurality of databases are over a system of networked computers and said step of accessing occurs over said system of networked computers.
- 80) The method of claim 79, wherein said data from said instrument is used to modify data  
10 already existing in said at least one of said plurality of databases.
- 81) The method of claim 80, wherein said web page comprises an applet.